In Part VII, we shift from the rocks, fossils, and surface features, to climatic considerations. The Cenozoic is well known for its subtropical to tropical plants and animals at mid and high latitudes. Moreover, there is also a Cenozoic mix of warm and cool climate types. Such warm climate fossils are totally out of character with the inferred warm Cenozoic climate that advocates of post-Flood catastrophism must postulate.

Moreover, the Cenozoic was a period of extensive volcanism. This volcanism would have produced “volcanic winter” with darkness probably for hundreds of years. Most of the Earth’s biosphere would likely die. And if that is not enough, a similar situation would have occurred with meteorite and/or comet impacts during the Cenozoic. These also would have caused “impact winter” to greatly stress the biosphere.
Chapter 29

Cenozoic Warmth at Mid and High Latitudes Not Post-Flood

There are abundant plant (paleoflora) and animal (paleofauna) fossils in the Cenozoic that indicate a warm climate. These warm climate fossils are commonly found at mid and high latitudes,\(^1\) presenting a stark contrast with the climate in those regions today. Since 1980, many warm climate paleoflora sites have been discovered at the *highest latitudes of both hemispheres.* These plant fossils have been dated from the upper Devonian through the early Cenozoic,\(^2\) but most are late Mesozoic and early Cenozoic.\(^3\) We will be concerned only with the Cenozoic examples in this chapter.

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The early Cenozoic is considered one of the warmest periods in Earth history. In regard to the late Cenozoic, the average temperatures associated with fossil plants are cooler than those of the early Cenozoic, but still significantly warmer than today. The late Cenozoic is assumed to be a time of gradual cooling from a warm Mesozoic and early Cenozoic to the multiple Quaternary ice ages in the very late Cenozoic (Figure 29.1), assuming the geological column and uniformitarian ice age history.

This chapter will give a few detailed examples of warm Cenozoic paleoflora and paleofauna at mid and high latitudes. I will also note that paleoflora sites sometimes possess a mix of plants or plant pollen from different climates and environments. This information is significant for determining the location of the Flood/post-Flood boundary.

**Worldwide Warm Climate**

Fossils show warm-climate fossil plants are common at mid- and high-latitudes during the Mesozoic and early Cenozoic. There are many sites in central Siberia, where plant fossils and pollen indicate mild climates. During the early Cenozoic, palms and mangroves are among the tropical fossils found in southern England; palms and swamp cypress are found on the island of Spitsbergen in the Svalbard archipelago, north of Norway at 80°N; and petrified palm fruits have been discovered in northwestern Greenland. Tropical and subtropical plant and animal fossils, such as palms and crocodiles, are found in the Green River Formation (early Cenozoic) in the central Rocky Mountain basins. This formation is far from the ocean and straddles the continental divide near 8,000 feet (2,440 m) in southwest Wyoming. Early Cenozoic crocodiles, large tortoises that cannot hibernate, tree ferns, and palm fossils are found not only in Wyoming, but also farther north in Montana.

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Figure 29.2. Swamp cypress from eastern South Carolina within a Carolina Bay.
Miocene, or early Late Cenozoic warm climate fossils, like palms, are found in central Germany. Miocene large tortoises and crocodiles are found as fossils in Midwest United States, as well as southern Saskatchewan, indicating at one time there was at least a subtropical climate.

Alaska

Fossil plants from warm climates are abundant in Alaska. Jack Wolfe has documented palms, swamp cypress, mangroves, climbing vines, and other plants that normally are found in a warm, if not tropical climate. Swamp cypress is common in Florida swamps and other areas of the southeast United States (Figures 29.2). Fossil plants representing cooler climates are also found in Alaska, but are relegated to a “cool period” during the warm early Cenozoic. Wolfe has also developed a sophisticated computer program to determine the climate, based on multiple characteristics of leaves in comparison with modern plants and their climate. His computer program confirmed the early Cenozoic climate of southern Alaska was subtropical to nearly tropical, even though plate tectonic projections place Alaska at the same high latitude it inhabits today. Wolfe found the same vegetation in British Columbia and Siberia.

Northwest United States

Northwest United States is well known for numerous Cenozoic paleoflora sites. Palm leaves and cycads from a warm climate are sometimes found in the early Cenozoic Chuckanut Formation south of Bellingham, Washington (Figure 29.3). Some of the 130 species of plants found in thin shale at Clarkia, Idaho come from a warm-temperate to subtropical climate, such as the avocado, magnolia, and sycamore. The Clarkia paleoflora is dated as Miocene, the early part of the late Cenozoic. Tropical and subtropical fossils are common in the early Cenozoic of the John Day Country of north-central Oregon.

Northeast Canada

One of the most difficult plant fossil sites for uniformitarian scientists to explain is that of unfossilized, mummified “forests” and leaf litters in the Geodetic Hills on Axel Heiberg Island.

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This find is located at 80°N latitude in the Queen Elizabeth Islands of Canada and dated early Cenozoic. Contrary to the present climate, the trees, leaves, cones, and fruits found in the deposits of the Geodetic Hills indicate a much warmer, wetter climate. Tree rings in the stumps are unusually thick, typically 0.1 of an inch (3 mm) wide with a maximum of 0.4 of an inch (10 mm), showing little or no indication of growth stress. Early Tertiary vertebrate fossils have been found near the plant sites on west-central Ellesmere Island. They include varanid lizards, snakes, salamanders, tortoises, alligators, birds, and several mammals, including rodents, horses, and brontotheres, which are an extinct type of rhinoceros. Flying lemurs uncovered there are of particular note because they need a year-round supply of seeds and fruits in the trees, indicating temperatures above freezing year round! The animals, like the trees, suggest a warm, possibly even subtropical climate with little seasonal contrast.

Figure 29.3. Palm fossil from the early Cenozoic Chuckanut Formation south of Bellingham, Washington, USA.

Scientists have been able to put some numbers to the early Cenozoic climate on Axel Heiberg Island. During the Eocene, the region had an estimated mean temperature of 55 to 59°F (13 to 15°C), a coldest month mean of about 39°F (4°C), and a mean annual precipitation greater than 47 inches (120 cm). This estimate is based on fossils of alligators, tortoises, flying lemurs, and other mammals and their climatic tolerances. The climate today is very different. Axel Heiberg and Ellesmere Islands are mostly frozen all year round; the only live trees are a few dwarf willows that grow about an inch high in the short summer. The current annual average temperature for the area is about -4°F (-20°C) with an annual average precipitation of only 2.5 inches (6.5 cm). The average temperature for the coldest month of the year is -36°F (-38°C), and the lowest temperatures are around -67°F (-55°C) in winter. Eocene temperatures must have been 63° to 72°F (35 to 40°C) warmer than today. Considering winter minimums, their temperatures were probably as much as 99°F (55°C) warmer than today, and precipitation was more than 18 times the current rate. That is a radically different climate compared to today.

**Mix of Fossil Plants from Widely Divergent Climates**

One of the challenges of the Axel Heiberg Island paleoflora is the wide variety of plants and pollen from many climate zones, such as hickory, maple, elm, ash, alder, birch, beech, oak, pine, fir, cedar, hemlock, and katsura, most of which indicate a warm, wet climate. The climate range varies from cool temperate to warm temperate. Swamp cypress today grows in the swamps of the Alabama wetlands, the Florida Everglades, or other areas of the southeast U.S. (Figure 29.2). The spruce, larch, birch, and white pine, usually represent a cooler climate.

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Two hundred or more species of plants that range from tropical jungles to cool temperate regions are associated with the Yellowstone fossil “forests” of the early Cenozoic. The same climatic mix is also found at Ginkgo Petrified Forest State Park in Washington State, but this is dated as late Cenozoic, the time the temperature was supposedly cooling toward the future ice ages. So the cooler climate plants “fit” the location, but the warm climate plants do not. For instance, warm climate *Eucalyptus*, bald cypress, teak, breadfruit, cinnamon, and gum are found here, and they are juxtaposed with cool climate trees such as spruce, larch, and birch.

Other examples of this mixing of paleoflora are found near the Ruby River area of southwestern Montana, where swamp cypress and a tropical vine are found together with pine, spruce, and fir. In northeastern Washington State, at the town of Republic, fossil plants from diverse climates are found in shale (Figure 29.4). It is estimated that 450 species of plant fossils have been found at Republic and nearby Princeton, British Columbia, of the Okanogan Highlands.

Uniformitarian scientists try to explain these unusual plant combinations by claiming that cooler climate plants grew in much higher elevations and were washed down into the subtropical and tropical lowlands. This explanation is employed by park authorities for the mix of 200 species of trees and plants from tropical and cool temperate climates at Ginkgo Petrified Forest State Park in Washington. However, there is a problem. There is no evidence for the proposed ‘highlands’ in the sedimentary and volcanic rocks within 50 miles (80 km) of the area. Thus, the uniformitarian explanation is extremely weak and obviously a dodge.

**Computer Simulations Indicate Cold Winters**

Uniformitarian scientists have attempted to apply computer climate simulations to the data in order to understand the inferred warm climates at mid and high latitudes. No matter if the altitude is lower, the ocean temperatures much warmer, carbon dioxide higher, etc, the computer simulations all fail to produce warm winters at high latitudes and mid latitude continental interiors. Abbot and Tziperman write:

Researchers have as yet been unable to reproduce equable climates in coupled ocean-atmosphere global climate models (GCMs) by simply changing boundary conditions and increasing greenhouse gas levels … Relative to existing data, either the polar regions are too cold or the tropical regions are too warm in these simulations.

Climate modelers continue to tweak their models to simulate an equable, warm climate at high latitudes. Under pressure from the geologists, their attempts to solve this “problem” by

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manipulating the climate simulations have had modest success, but they use extreme values for some of the variables. Why do the simulations fail? The answer can be found in elementary meteorology. Winter temperatures on continents are primarily caused by little or no sunshine, or a low angle of the sun. There is nothing that can be done about it

The evidence of Cenozoic tropical and subtropical fossil plants at mid and high latitudes, the mix of warm and cold climate types, and the failure of climate simulations to duplicate the implied climate are extremely perplexing to uniformitarian scientists. Not only was the climate warm, there was very little seasonal contrast between winter and summer, unlike the range today. The same problems occur for any Flood model that believes the Cenozoic or most of it is post Flood. The post-Flood climate was the time of the Ice Age with volcanic ash and aerosols in the stratosphere causing cooler summers in mid- and high-latitude continents. How can so much tropical and subtropical plants and animals be found at mid and high latitudes after the Flood? It seems impossible. So, the Flood/post-Flood boundary has to be in the Late Cenozoic, often in the very Late Cenozoic, over wide areas of the Earth.

All the paleoflora and paleofauna, including the mix of plants from various climates, finds a straightforward explanation during the Flood based on the spread of log mats around the flooded earth.\textsuperscript{51}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure29.4.jpg}
\caption{Outcrop of shale at Republic, northeast Washington State, where 450 species of fossil plants have been found, including a subtropical to tropical cycad fossil.}
\end{figure}